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# Fractional Currency Collectors Board

## MAY 1997 NEWSLETTER

### THEY'RE BAAAACK!

Hope you have all been watching the hobby media and looking at the auction catalogs. Seems many notes from past sales are coming back onto the block. These include not only Milt's sale, but also the Alan May, Herman Halpern and many CAA sales. Dealers--give me a list of your future auctions relating to fractional and I will include them in the newsletter as able.

### ANNUAL MEETING

It is almost time for our annual meeting. As always, it will be held during the International Paper Money Show in Memphis, Tennessee. This is the mecca of shows for paper money. Try to attend if at all possible. Our distinguished and esteemed "*President Hales*" has not as yet received our "*official*" meeting time, but it will probably be around 2PM on Saturday June 21. When you get to the show, there will be plenty of schedules of events posted and available, so refer to these for the actual time and place. During the meeting, we will be discussing any issues about our group that you want. Also, this will be the time to elect a new slate of officers if you have a desire to serve. Remember, the offices are voluntary, unpaid and resignable only if you find a suitable (living and breathing) replacement. We will also be discussing the contents of our new member packets. Due to increasing printing and postage costs, we need to examine what we send with the first mailing. I will be doing a post-Memphis newsletter in early July, detailing the show, so send me anything you want included.

### MEMPHIS SPEAKER

Art Paradis will be the speaker at our Memphis meeting. He will be speaking on "*Fractional Currency Counterfeits*." This topic is very interesting and very necessary for our membership, especially with new collectors. With the rising popularity of Fractional Currency, counterfeits (many of them extremely well done) are also surfacing. Remember, knowledge is the best way to guard against being taken in by counterfeits.

## EXHIBITS

With all of our new material, this year we should have one of the best years of fractional exhibits ever! Once again, Mart Delger, one of our founders, is exhibit chair. Contact him at 9677 Paw Lake Dr., Mattawan, MI 49071, for an application. Deadline for applications is May 16 (if this comes after that date, call him and he may be able to squeeze you in). The FCCB (by way of Len Glazer's extreme generosity and support) awards beautiful plaques for the top three exhibits. That would be two besides the first place one that is coming home with me. So, plan an exhibit. They are really easy and fun to do. Unfortunately, I spoke with Mart on April 22 and unfortunately, he only had three fractional exhibits--and **NO NEW EXHIBITORS!!!**

## NEW MEMBERS

Boy, we are hot! Interest in fractional has taken off like a rocket. Bill Brandimore, our membership chairman is working so hard, he is actually sweating! Since last Memphis, we have added 23 new members! We are just a few shy of getting our 300th member! Now, let's not rest on our laurels. We need to keep that enthusiasm and interest at a high (see whining note below).

## DUES

Dues are Due!!! If you have not already paid them, send \$12 to Dr. Lee. You owe for 1997 if you joined prior to October 1996. As you can tell from the list, out of 142 members, 90 have not paid!! You can pay at Memphis, but only if you seek Dr. Lee out and don't wait for him to come to you. For those on the list, this will be the last newsletter you receive until you pay your dues. Also, check the list carefully. Dr. Lee and I have been known to make a mistake or two. If you are on the list and have already paid or have not paid and are not on it, please reconcile this with Dr. Lee.

## NEW FINDS

I only have one new find to report--Bill Brandimore found a 3R50.21h, Fr. 1339 (fancy reverse Spinner) with the reverse surcharges inverted. His specimen is only the sixth of the type known. I was also able to pick up a couple of association-type items. I found two receipts from the 1860s, where Scott #68 and 76 stamps (the ones pictured on first issue notes) were used as revenue stamps.

## T-SHIRTS

As I stated in the last newsletter, Art Paradis and Bob Laub have designed a club T-Shirt. It has a Spinner note on the front with "*Fractional Currency Collectors*" on top and "*Have More Cents*" on the bottom. At FUN, the shirts were \$12. If you are interested in one, see Art or Bob in Memphis.

## INVOLVEMENT

Milt will be cringing to no end when he reads this. I know, realize and accept the fact that I am now **WHINING!!!!** But, we need more involvement from everyone if our hobby is to succeed. We are at a high we have not experienced in a long time, due to the popularity of our little pieces of paper. We have a record number of new members, more availability, especially of the scare items, etc. However, most have not paid dues, we only have three exhibits for Memphis and no one has requested our slide show. Do something about this! Write an article for your local club news, share the slide show with them, exhibit. Even if you cannot be at Memphis, there is a lot you can do, even if it is merely paying your dues on time. Seems to me we would want to keep interest high since supply and demand dictate the amount our notes get on resale. Since supply is very limited, that leaves demand. My experience has always been that if interest goes down, so does demand and therefore prices plummet. Good for me the buyer, bad for you, the seller.

## PHONE NUMBERS

The membership list has only those phone numbers of the members who have told me they want it on there. If yours is not listed you want it listed, let me know (please also include your phone # as I may not have an up to date one for you).

## PHOTOS

Milt and JoAnne gave me some great pictures from FUN. Unfortunately, my copying capabilities are not sophisticated enough to allow these to be reproduced in the newsletter. So, I had an idea--send me any extra pictures or copies you may have (please label with owner, date and event) and I will start an FCCB photo album. We can then display it at each Memphis.

## ENCLOSURES

1. Updated membership list showing 142 members.
2. Coin World Article by one of our members, Fred Reed, about the use of Lincoln's portrait on securities.
3. A National Geographic Article from Milt on paper making.

# Abraham Lincoln

## Money shapes how Americans view the 16th president

By Fred L. Reed III, NLG  
Special to COIN WORLD

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### Prologue

Today we are inundated with barrages of images: computer terminals flash multiple activities simultaneously; multiplex cinemas project dozens of movies concurrently; television screens pander hundreds of programs separated only by the click of a button.



Events stream live from the other side of the globe and the far-flung reaches of space. Yet much of our information is gleaned from brief encounters via visual and sound bites. Setting aside for a moment our 21st century conception of the

visual, numismatics can teach us a great deal about our forebears' situation a century and a half ago.

For them money played a principal role in shaping public visual perception. Money was mass media long before George Lucas, Ted Turner, Bill Gates or even Johann Gutenberg drew breath. The Caesars knew a thing or two about the media and the message when they stamped their own images and special messages on coins of their realms.

Numismatists are fortunate in holding a window to our past. Specifically let's look at the public's view of the nation's 16th chief executive, Abraham Lincoln, even as the ninth score-plus anniversary of his birth streams past veiled as



President's Day.

In February 1997, no citizen of the world is unfamiliar with Lincoln's looks. Money is STILL mass media until such time as binary electronics may supplant it. Several hundreds of billions of Lincoln cents this century have carried Lincoln's image to everyone everywhere as the world's most popular coin design ever. Additional billions of small-size \$5 notes have created much of our perception of his looks and his significance.

Few among us are older than these two images' ubiquitous display on our money. Together these images dominate derivative uses in other media too. It's not surprising then that among the 2,000-plus Lincoln portraits I've collected in the past 30 years, half of them derive from the cent profile or the currency portrait.

Although Lincoln is the most important and most discussed American president according to surveys of historians, our numismatic insights are barely given lip service on the matter.

There's no shortage of interest in Lincoln, but after 16,000 books, pamphlets and separate titles on him there's still room for another book. In fact, I'm writing one now which analyzes the role of monetary Lincoln images on public perception. Far from being arcane or

C.S. GERMAN'S photo became the accepted portrait of Abraham Lincoln in his own time because of its prominence on U.S. bonds and notes.

esoteric, this realization ought to become mainstream.

Lincoln's contemporaries viewed the man differently from our icon images. We numismatists hold in our hands evidence of the crucial role the mass media of money played in the development of Lincoln consciousness in his own day and time.

I've discussed Lincoln's image in *Coin World* before. What follows is the first of four additional essays which in coming weeks will bring to 12 the number that have appeared in these pages in the last decade. At hand specifically is examination of what money can teach us about our parents' parents' parents' conception of Lincoln the man, martyr and myth.

### Part I

On March 4, 1861, Lincoln took the oath of office and became the 16th president of the United States. Reification of the nation's outsider, western president was in motion, however, well before Lincoln came east to take up the reigns of government.

In January while the president elect was still in Springfield, Ill., planning his cabinet appointments, working on his in-



HENRY GUGLER'S engraved vignette of Abraham Lincoln became the standard Lincoln portrait in Lincoln's lifetime.

augural address, and growing out the beard that was to reshape his presidential image, Lincoln posed for a camera-man. The resultant photos were fine portraiture in their own right. However, engraving almost immediately translated them to achieve even greater significance.

Their appearance on U.S. securities, first bonds and then currency, became the dominant, accepted portrait of Lincoln in his own life time. Their wide publication and broadcast on these official government media meant repetition and continuous reinforcement. For most people, the Abe Lincoln on the money was the Abe Lincoln in the White House. The official Lincoln and the popular Lincoln became one and inseparable.

This chain of events was in progress before the inauguration. Two days earlier, March 2, Congress appropriated funds to settle claims in the Washington and Oregon Territories for suppressing Indian hostilities in the mid-1850s. It authorized \$2.8 million in 6 percent 20-year Treasury Bonds.

The Treasury Department printed and issued the bonds in the summer commencing their issue July 1. Lincoln's political adversary, Salmon P. Chase, whom Lincoln wisely brought to the capital as his Treasury Secretary, deferentially chose his boss to appear on the \$500 bonds, which were the largest of three denominations issued.

The Lincoln vignette is a large full bust of the president facing the viewer's right surrounded on three sides by an



GUGLER'S 13-star vignette was used on the \$500 6 percent bond authorized by the acts of July 17 and Aug. 5, 1861. (Photo from *An Illustrated History of U.S. Loans* by Gene Hessler used with permission.)

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**THIRTEEN-STAR** vignette by Henry Gugler was used on the \$10,000 bond, printed by the National Bank Note Co. (Photo from *An Illustrated History of U.S. Loans* by Gene Hessler used with permission.)

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ornamental border, the chief device of which is a 13-star banner at its bottom. Chase also selected himself for the \$50 denomination and Army general-in-chief, Lt. Gen. Winfield Scott for the \$100 certificates.

Selection of these three figures was important. It sent small (only \$1 million was issued to pay claimants) but positive messages to the capital marketplace: Lincoln was captain; Chase, first mate; and Scott, boson of the nation's ship of state in the critical times ahead.

Capital expended to settle suppression of western hostilities was still in good hands. The Union and the marketplace would be preserved and the bondholder would get six-percent bonus payable semi-annually.

Tables turned when hostilities began with the firing on Fort Sumter April 12. The ante increased a hundred fold. Suppressing native Americans on the other side of the continent was decidedly cheaper than putting down full scale insurrection and separatism from the breach of the southern tier.

Acts of July 17 and Aug. 5 authorized \$250 million 6 percent 20-year bonds, which likewise made appearance for sale that summer. These high value registered bonds were printed by the National Bank Note Co., New York. Again Lincoln appeared on the largest denomination. This time due to the unprecedentedly large appropriation, Lincoln graces the \$10,000 bond. Again the Gugler 13-star Lincoln image is employed.

The hold Gugler's image exercised in Lincoln's own age is similar to that of today. Just as the \$5 note portrait or the cent profile dominates our contemporary world, our forebears' view with its much simpler media exposure was conditioned and reinforced by the image first depicted on these first bonds issued in summer 1861.

The presidential image that graced these two bond issues became the domi-

nant contemporary Lincoln portraiture. Its hold lasted much of the 19th century and conditioned depiction of Lincoln in other media. The impact of this image is evident in my own collection, where 10 percent of the portraits are copies or derivatives of this view.

It eventually became so ubiquitous a representation of Lincoln that, even a century and a half later, it is still the second most prevalent image in my collection. In total its derivative use on the bonds, currency, lithographs, engravings, war envelopes, political and advertising memorabilia and other media numbers more than 200 distinct pieces.

## Deriving the Image

With the nation splintering following Lincoln's election in 1861, it was important for people to see their new president. A westerner, outside the political mainstream and consciousness of most of the country, Lincoln remained in his hometown, Springfield, for several months while the lame duck Buchanan administration allowed partisanship to take its course.

Lincoln had polled a minority of the splintered, popular vote. In the words of one historian, the majority of his fellow citizens had regarded him as "too radical and dangerous to occupy the White House."

A man of ungainly appearance with unpopular politics, Lincoln awaited his inauguration sifting through fan mail the likes of: "Deformed Sir . . . It remained for you to unite all species of deformity and stand forth the Prince of Ugly Fellows." At that, the epithet was mild criticism. Even his friends and political allies conceded his features, stature and general appearance were exceptional.

The choice of presidential portraiture for the money markets was an important one, complicated by the fact that candidate Lincoln had grown whiskers during

the winter. The rustic, clean-shaven image of Lincoln the campaigner was now the hirsute, worldly image of Lincoln the national leader. The beard was a success. It hid some of his worst features: his long neck, his cavernous cheeks, his large ears.

Fortunately an excellent image was available. In late January at the behest of an Ohio sculptor who was modeling Lincoln's bust, Springfield photographer C.S. German took two nearly identical photos of the president-elect. A neighbor of Lincoln's, German had photographed him before and the photo session was a very successful one. German's photos (Lloyd Ostendorf numbers 41/42 in his definitive *Lincoln in Photographs: An Album of Every Known Pose*) are ac-

knowledgeable among the best of the 100+ for which the president sat.

Henry Gugler, a German immigrant and an accomplished fine engraver, commissioned by the National Bank Note Co., faithfully translated this photographic image. Gugler's portrait likewise was superb, depicting the newly elected president as calm, composed, assured and resolute. Thus the Lincoln image was launched off to a good start in the first months of the war.

# Abraham Lincoln

## Money shapes how Americans view the 16th president

By Fred L. Reed III, NLC  
Special to COIN WORLD  
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The initial appearance of Henry Gugler's Lincoln engraving on national obligations, destined for the capital markets on which the solvency of the country would increasingly depend (described in Part I), is one of the unsung, serendipities of the Civil War.

### Second in a Series

Lincoln, who became in his lifetime the most vilified president in history, subject of jokes, scorn and nasty satirical renderings in the press, never-the-less represented the country and its war effort to the money-lenders in a princely manner.

War had broken out. Unprecedented measures were called for. Financial borrowing became a necessity and paramount concern of the national administration. Obligations were escalating at an alarming rate. Repeatedly the administration was forced to coax more and more from additional sources. Each new bond offer-

ing successively bore Gugler's impressive vignette. The continuity of portraiture so important in creating a feeling of continuing stability in the jittery money markets remained unbroken throughout the war.

The same acts of July 17 and Aug. 5, 1861, that had authorized the large bond issues early in the war also authorized issuing non-interest bearing Treasury notes receivable for all government dues and payable in specie on demand. These are the familiar demand notes that became the first U.S. legal tender greenbacks.

The bank note companies that were bidding for this work anticipated the appearance of Abraham Lincoln on these notes too. The National Bank Note Co. prepared an essay for the \$5 note with a reversed and compact version of the Gugler 13-star image, discovered by Gene Hessler.

This design was not accepted in favor of an American Bank Note Co. design that placed Lincoln on the \$10 note. Incidentally, the Lincoln engraving on the accepted note design by engraver Frederick Girsch was

also based on the C.S. German photograph and will be the subject of the final installment of this series.

**Additional bond uses**  
The situation on the battlefield was deteriorating when the issue of 6 percent Five-Twenties was authorized by the Act of Feb. 25, 1862. The \$500 million authorized was payable at the pleasure of the government after five but within 20 years to fund the Treasury Notes and floating debt.

Plates were prepared by the Treasury Department and the bank note companies and printed by the Treasury Department with the Gugler 13-star image. A discovery \$500 registered bond from the second series of this large emission appeared last year in an R.M. Smythe auction.

This discovery certificate was number 517, issued to Fisk & Hatch, the general agent for sales of the bonds. On the issue Lincoln is paired with a more substantial vignette of his Treasury Secretary Salmon P. Chase, quite unlike those which had appeared on earlier bonds.

In addition to the \$500 bond, Lincoln's image also makes its appearance on the lowest value of this large float, the \$50 coupon bonds destined for the small investor. Their issue commenced after May 1, 1862.

The extension of Lincoln's portrait to the lowest denomination is significant. These fourth series, coupon bonds were meant to be handled by small investors: interest was payable in coin semi-annually. Use of Lincoln on these bonds was tacit guarantee to the man in the street of the rightness of the



UNISSUED, canceled bond remnant from Loan of Feb. 25, 1862.

national cause, the stability of its government and the safety of his investment.

This switch to low-denomination bonds and the linking of the national agenda (Lincoln) with the personal agenda of the common man well illustrates the financial strategy Treasury Secretary Chase referred to in his annual report of 1863.

Another enigma from this bond emission is an unissued, but canceled, bond specimen remnant that pairs Lincoln with representations of the "Farmer and Mechanic." At least two examples of this unissued design exist: one I obtained several years ago from Illinois

*"Lincoln, who became in his lifetime the most vilified president in history ... never-the-less represented the country and its war effort to the money-lenders in a princely manner."*



A VIGNETTE on India paper is the Gugler design reversed for use on U.S. bonds.

"Every holder of a note or bond ... has a direct interest in the security of national institutions and in the stability of national administration."

The Fourth Series coupon bonds issued under this act in the denomination of \$50 bore the Gugler 13-star Lincoln image. These were among the first securities wholly engraved, printed and numbered at the Treasury. They were also the first to pair Lincoln with additional vignettes. Third series plates were altered. Lincoln replaced a mere patriotic device, "E Pluribus Unum." One of the other two engravings represented "Law and Peace." The remaining engraving somewhat enigmatically represents an American Indian.

dealer Dennis Forgue, and another presently in the marketplace. I believe these remnants trace to the Christie's sale of the American Bank Note Co. archives due to glue stains on my specimen's reverse indicating it may have once been part of a specimen book.

This design is symbolically a very successful pairing. At its center is Gugler's formalized Lincoln portrait rendered in a compact fashion. It represents national interest, stability and



A DEFACED plate from American Bond Detector shows how the Gugler Lincoln looked on the \$500 bonds.

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common ground, while off to each side the private interests of the common man look to the federal government to secure their joint futures.

Tantalizingly a portion of the denomination medallion appears at the far right of the remnant. It bears distinct similarity to the known \$50 medallion from the first series registered bonds from this bond issue. If this was to be the design for the \$50 bonds, it may have been passed over for continuity's sake permitting use of the enlarged Lincoln image with its 13-star border.

However, this smaller version of the Gugler image was almost immediately translated to the marketplace via the following year's large, annual appropriation raising the debt ceiling and authorizing increased borrowing to meet financial demands. The compact Lincoln vignette rendered by Gugler appears for the first time on circulating notes of the United States.

Section 2 of the Act of March 3, 1863, provided for the issue of short-term, interest-bearing legal tender (i.e., circulating) Treasury notes of \$10 and \$20 denominations payable one year after issuance at 5 percent. The compact Gugler portrait without fancy border was placed on the \$20 plates prepared by the National Bank Note Co. after Chase rejected an essay that would have placed fellow cabinet member Secretary of the Navy Gideon Welles on this issue. This note issue was delayed until March 1864, after which they were issued to the extent of 822,000 pieces.

The Act of March 3 also authorized issue of circulating 6 percent compound interest Treasury notes payable in three years. These \$20 notes thus returned



**NATIONAL** Bank Note Co. prepared an essay for a \$5 demand note with the Gugler image reversed. (Photo courtesy of Gene Hessler.)

\$23.88 at maturity. The smaller Gugler Lincoln vignette appeared on notes engraved and printed solely by the Treasury Department. In total, 152,000 notes were printed slated to be issued beginning in the fourth fiscal quarter of 1864 with signatures of Chittenden/Spinner. However, none were released.

The issue of these compound interest notes, however, was extended by the Act of June 30, 1864, designed to redeem the outstanding 5 percent notes of earlier issues. This act authorized issue of 6 percent compound interest three-year notes. The large number of 677,600 notes were issued with the date July 15 bearing Chittenden/Spinner signatures.

Following selection of the new Register of the Treasury, S.B. Colby, slightly more than 1.2 million additional notes were printed at the Treasury Department. Virtually all were issued commencing Aug. 15, 1864, and paid out through the end of 1865.

The Act of March 3, 1863, also authorized this additional borrowing through the emission of Ten-Forty 6 percent coupon and registered bonds. Included were \$100 bonds of both types with the Gugler 13-star Lincoln vignette, issued for 17 years commencing the fourth fiscal quarter of 1864.

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These bonds are dated June 15, 1864. As shown in the *American Bond Detector* (1869) printed from defaced government plates, the Lincoln pairing anticipated but not issued in the prior bond issue emerges on the \$100 coupon bond with a central vignette of Lincoln — the familiar Gugler, 13-star vignette. To its sides are a conjoined "Farmer and Mechanic" and a ship's vignette, "New Ironsides."

Virtually simultaneously the appropriations Act of June 30, 1864, provided for an additional \$400 million of 6 percent Five-Twenty bonds. To distinguish these two emissions, a new Lincoln vignette (the Gugler image reversed) was reprised from its Treasury note incarnation. However, the new version created for the third and fourth series \$500 bonds is the full Gugler image within an elaborate framework of U.S. flags, the U.S. Capitol with its recently completed dome, and a representation of the "Constitution and Law."

On the bonds, Lincoln is additionally paired with another vignette of Winfield Scott although he had retired several years earlier. These bonds were issued beginning in second fiscal quarter of 1865. None are known but the vignettes, medallions, and some additional typographical design work appear as Figure 3, Plate 4 of the *American Bond Detector*.

Thus successive Gugler Lincoln images appearing on each new Treasury issue created a continuity in the capital marketplace which helped sell the war effort to capitalist and commoner alike. Without the money raised in the United States and abroad by these loans, the war effort would have foundered and Lincoln's purpose of preserving the Union would have failed.



**AN** American Bond Detector \$100 plate showing the original 13-star Gugler image.

# Abraham Lincoln

## Money shapes how Americans view the 16th president

By Fred L. Reed III, NLG  
Special to COIN WORLD

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The legacy of the Henry Gugler engraving of Abraham Lincoln (described in Parts 1 and 2 of this series) is both large and important. The preponderance of this imagery on official government emissions must not be underestimated. Not only did

### Third in a Series

the Gugler image bear official government sanction throughout the war, but its repeated use on subsequent large emissions created a constant reinforcing current for its acceptance by the public and popular culture.

No amount of private use of competing images could displace this view of Lincoln in the popular mind. And in fact it did not. This is an important point which Lincoln scholarship has so far largely overlooked, although with insight Winfred Porter Truesdell can be interpreted in this way.

His very rare and monumental work, *Engraved and Lithographed Portraits of Abraham Lincoln*, was an early attempt to trace the derivation of Lincoln images to their original photograph models. Unfortunately, only one of four anticipated volumes was ultimately

published in 1933.

Exquisitely produced and extremely rare, I tracked down and examined a copy of Volume 2 (the only one published) a decade ago in the Rare Books Room of the Library of Congress. I incorporated insights from Truesdell's work in preparing early essays in this series for *Coin World* in the 1980s. Recently I acquired a personal, autographed copy, number 44 of an edition limited to 225.

As a cataloger, Truesdell makes no special mention of the fact, but he records a disproportionately large number of engravings and lithographs based on the C.S. German photographic model. Comparing his descriptions to items in my own collection it is possible to trace many of these directly to the Gugler engraving.

### Legacy of Gugler Image

It's certainly no coincidence that this is so. Given its overwhelming public and popular acceptance, conformity of use in the private sector might be expected. Upon close examination, this is just what we find.

Duplication of the Gugler image in the private sector followed almost immediately up-

on its introduction on U.S. securities. Its first documented reuse appears on \$1 notes prepared by the National Bank Note Co. for the Merchants Bank of Trenton, N.J., with an issue date of Nov. 20, 1861. Curiously the month, day and century are engraved, while the two digits "61" were filled in by hand when the notes were

printed, while the \$2 and \$3 notes use the original Gugler 13-star vignette.

The compact Gugler Lincoln vignette also appeared on \$1 notes for the Bank of Commerce,

George-

town,

D.C., prepared by National Bank Note Co. This issue appeared in two series issue-dated May and June 1862. They are decidedly rare today.

In early 1862 further extending the range of public use of its Gugler 13-star image, National Bank Note Co. issued patriotic envelopes of the size 5½ inches by 3½ inches without inscription.

These envelopes are distinctive because they are the only engraved Lincoln patriotic envelopes of the Civil War era. All other Lincoln envelopes are lithographs or wood cuts.

These wonderful items are known in black, black and bronze, and bronze as cataloged in James Milgram's *Abraham Lincoln Illustrated Envelopes and Letter Paper*. Additionally, this writer owns a hand-colored variant, but there is no way to know whether the coloring was done contemporaneously or at some later date.

It is plain that the Gugler image based on the C.S. German photographic model was in wide circulation during Lincoln's own lifetime. Additionally, its practical effect was to spawn a host of copies in all the other graphics arts media. The cumulative effect of this

*Duplication of the  
Gugler image in the  
private sector followed  
almost immediately  
upon its introduction  
on U.S. securities.*

signed, numbered and issued.

The note was issued in two series, A and B, and presents the first use of the compact, oval Gugler rendering which appeared later on the interest-bearing U.S. Treasury notes. Although no Lincoln notes are common, these notes are the most frequently encountered examples of the Gugler vignette.

NBNC also prepared a fine bank note series for the Lincoln Bank of Clinton, N.Y., dated April 2, 1862. Notes include \$1, \$2 and \$3 denominations, all of which are rare. Besides undated proofs, James Haxby also reports a counterfeit \$1 and a \$1 raised to a \$5 in his *United States Obsolete Bank Notes*. Additionally I have seen a contemporary photographic counterfeit. The \$1 note employs the compact Gugler vi-



*Lincoln*

**LINCOLN CONGRESSIONAL** Memorial frontispiece was engraved and printed at the Treasury Department.

was to flood the populace with a contemporary icon of powerful persuasion.

Significantly no other Lincoln image appeared on government-issue media prior to Lincoln's death (except of course, the similar portrait also based on C.S. German's photographic model by Frederick Girsch, which will be discussed in Part 4). These two portraits were so similar, in fact, that their distinctiveness was probably lost on most observers at the time and by many other commentators since.

Thus it may be rightly affirmed that during the heroic age of Lincoln myth-making, his own lifetime, the government security derived portraits were normative.

### Aftermath

In the short span of four years Abraham Lincoln's portrait had gone from an unknown face of a relatively obscure western lawyer "to the best known face" of his age in the words of Harold Holzer, eminent modern Lincoln pictorial scholar.

Capable of self-deprecatingly referring to himself as "the ugliest man in the state of Illinois," Lincoln's presidential image on the official Federal obligations never-the-less pre-

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**LINCOLN BANK**, Clinton, N.Y., issued a fine series of bank notes in 1862 bearing the Gugler design.

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sented him splendidly resolute and patriarchal. The Gugler engraving had performed its work well.

Lincoln went to his death and martyrdom on Good Friday, April 14, 1865, with the knowledge "that he was the most unpopular President the Republic had known up to that time," biographer Stephen Oates records.

Even so, the official sanction of the Gugler portrait transcended his death. A contemporary, Andrew Boyd penned his significant *Memorial Lincoln Bibliography* in 1870. In it he records, that the image appeared on badges worn by Treasury Department employees April 19 on the day of the obsequies in Washington.

A year later in Lincoln's honor, Congress held a special ceremony on Feb. 12, 1866, marking what would have been Lincoln's 57th birthday. In attendance were both Houses of Congress, President Andrew Johnson, the Cabinet, General U.S. Grant, then Chief Justice Salmon Chase, foreign ministers and other dignitaries to hear a memorial oration by historian George Bancroft.

A severe Lincoln critic during the war, Bancroft's speech indicated a largely altered view of Lincoln's significance. A total of 10,100 copies of the speech were printed and distributed by the government with a memorial frontispiece engraved and printed at the Treasury Department.

The Gugler 13-star portrait appears as the centerpiece of an elaborate memorial cartouche of weeping angels surmounted by an eagle with a facsimile "A. Lincoln" autograph below. These items are highly prized by collectors as a forerunner of the souvenir card series.

Fittingly the following year, the Treasury Department made one final use of the magnificent Gugler engraving before apparently retiring it forever. The occasion was the creation by Congress of the National Lincoln Monument Association, incorporated by Act of Congress, March 30, 1867. This should not be confused with a similarly named organization organized in Illinois

in 1865 to erect a suitable memorial at Lincoln's tomb in Springfield.

The National Lincoln Monument Association in Washington, D.C. solicited funds from individuals to erect a suitable memorial. U.S. Treasurer F.E. Spinner was treasurer of the association and suitable donation receipts were engraved and printed at the Treasury Department and signed in his famous Spenserian script.

These are exquisite items bearing Gugler's full original vignette, but replacing the 13-star border with the symbolic flags, Capitol, "Constitution and Law" images that were employed on the third and fourth series Five-Twenty bonds

from the June 30, 1864, issue.

This time, however, it was not necessary to reverse the Lincoln portrait so he is depicted in his "normal" manner facing the observer's right. An additional vignette depicts Union offering sacrifices on the Altar of Freedom. The fund raising activity was not very successful. Several pieces of this rare certificate are known, dated in 1868.

The retiring of the Gugler engraving by the Treasury Department closes a unique chapter in Abraham Lincoln iconography. The engraver, Gugler, would go on to other achievements, including a life-size engraved bust widely heralded as the most beautiful Lincoln image of all.

In time additional images of Lincoln would adorn U.S. currency, stamps, bonds and other obligations, but during Lincoln's presidency and the years immediately following the renderings by Gugler and Frederick Girsch (to be described in the next and final installment of this series) dominated public consciousness.



**NATIONAL BANK** Note Co. issued patriotic envelopes bearing the Gugler 13-star vignette.

In their time these renderings of C.S. German's photograph of the president elect served both Lincoln and the country well. Lincoln the rustic was transformed into Lincoln the patriarch. In the meantime, the obligations on which they appeared helped implement his policy of restoring the Union he'd been elected to defend and for which he died in pursuing its restoration.



**MERCHANTS' BANK** notes with Lincoln's portrait are the most frequently encountered notes.



**NATIONAL LINCOLN** Monument Association donation receipt signed by U.S. Treasurer F.E. Spinner.



# Abraham Lincoln

## Money shapes how Americans view the 16th president

By Fred L. Reed III, NLG  
Special to COIN WORLD

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Collectors today are most familiar with the incarnation of the C.S. German photo rendered by Frederick Girsch on the \$10 greenbacks. This is quite natural, since the notes and bonds heretofore described are rarely seen today. Virtually all are long since redeemed or otherwise lost to the vicissitudes of time.

Like Gugler, Girsch was a German immigrant. A fine engraver, Girsch toiled first for New York publishers and eventually bank note companies. Gene Hessler credits him with vignettes for federal currency, obsolete bank notes, foreign notes, and securities. Many of these, especially historical vignettes for large-size national bank note reverses, are splendid.

However, Girsch's engraving of Lincoln is inferior to Gugler's. While faithful to its photographic model, Girsch's engraving is not nearly so rich in detail nor so powerful as Gugler's. Girsch's image is flatter, less well modeled and lifelike. This is especially true around the eyes. Gugler's Lincoln is intense; Girsch's, less engaging to the viewer.

This is apparent on the full image proof in my collection, which suffers by comparison to the full Gugler image. Additionally, because of the \$10 note's design, the impact of the abridged engraving on

the note is lessened further still.

There is enough similarity to the two, however, that they are frequently confused. I recently purchased a nice impression of the Girsch vignette on India paper from a premier currency dealer, who shall remain nameless due to his misattribution of the engraving penciled below the bust.

The principal benchmarks differentiating Girsch's engraving from Gugler's is the pointed crown of the hair near Lincoln's part and the exaggerated separation of the lapels on the former. The lapel cleft is pronounced and looks like a "D" lying on its back on the Girsch engraving.

### Greenbacks

Girsch was commissioned by American Bank Note Co. for a Lincoln portrait in 1861. The Girsch rendering is fuller-faced than Gugler's. From this distinction and discrepancies in his treatment of Lincoln's hair and clothing, it appears that the portrait he copied was Ostendorf 42 (*Lincoln in Photographs: An Album of Every Known Pose*, by Lloyd Ostendorf) whereas Gugler may have based his engraving on Ostendorf 41.

Girsch's effort became die number 141 for ABNCo. According to Truesdell (*Engraved and Lithographed Portraits of Abraham Lincoln*), Girsch finished off his engraving in several different versions as presentation proofs.

*"However, Girsch's engraving of Lincoln is inferior to Gugler's."*



AMERICAN BANK Note Co.'s Dwight Company souvenir sheet is a popular use of the Girsch vignette.

On the demand notes Lincoln faces the observer's right within a fancy border with the date of the authorizing legislation, July 17, 1861, above. All notes additionally bear the date August 10, 1861, which is NOT the day the notes were first

issued to the public as stated by Friedberg for many years.

Congress authorized \$50 million of the demand notes by the Acts of July 17 and Aug. 5,

1861. Their issue commenced Aug. 26, causing a great deal of curiosity about the new currency designs. *Harper's Monthly* magazine, among others, depicted woodcuts of the Lincoln note soon after its introduction. Six months later Congress extended this issue to \$60 million on Lincoln's 53rd birthday, Feb. 12, 1862. Note issue ended March 4 after 2,003,000 of the \$10 notes had been paid out.

Being the legal equivalent of gold, demand notes circulated at par. They were quickly redeemed, but immediately replaced by fiat Treasury notes. Although similar in appearance, these United States Notes were cut loose from gold by suspension of specie payments several months earlier and allowed to float. By summer 1863 95 percent of demand notes had been redeemed.

The replacement notes authorized Feb. 25, 1862, to the amount of \$150 million, were promptly paid out by the Treasury. Authorization doubled within months. The Act of July 11, 1862, added another \$150 million, and a resolution of Congress Jan. 17, 1863, upped the ante another \$100 million. The Act of March 3, 1863, authorized a further issue of \$200 million.

The \$10 U.S. Notes are stylistically similar. Of course, the words on demand no longer appear and the issue date of the series, March 10, 1862 (or 1863), differs. The Lincoln portrait and frame is identical except for the date above Lincoln's head. Act of Feb. 25, 1862.

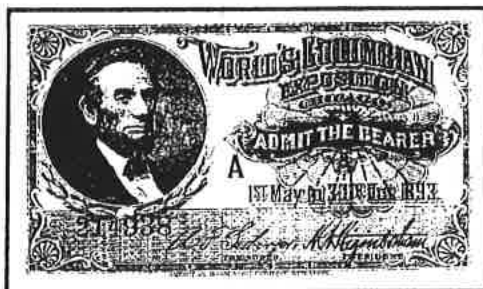
Note issue began April 2, 1862, and ceased April 19, 1869, after which a new series of notes with differing designs appeared. Total \$10 U.S. notes issued, according to the 1881 *Finance Report*, was 11,801,000.

### Impact of Girsch engraving

During the war years and those immediately following, Girsch's Lincoln portrait was doubtless the most prevalent presidential image available to the public. Circulated on U.S. currency by the millions of impressions, it crystallized perception of Lincoln in the public's mind. As poet and Lincoln biographer Carl Sandburg re-



THE REPUBLICAN National Committee drew on its heritage to inspire contributors in 1892.



WORLD'S COLUMBIAN Exposition admission tickets are the most readily available example of the Girsch engraving.

called years later: "on the \$10 bill a steel engraving representing Lincoln's face became familiar to all who looked at it."

The Girsch image thus served as a perfect compliment to the Gugler engraving. If the bond portrait was the set up punch, the left jab on public consciousness, the currency note image delivered the knock out punch, the right cross.

Secondary uses of the Girsch on other documents were almost immediate. Unlike the Gugler vignette, however, these secondary uses did not include bank notes due to government insistence that private notes not imitate the newly introduced federal notes.

American Bank Note Co. was free, however, to employ Girsch's engraving on non-competing commercial printing. An early use was an engraved ticket for a Ninth Ward (presumably New York City) Lincoln Union ladies' event which also bore Lincoln's immortal words from his second inaugural address: "With malice toward none, with charity for all."

The Girsch Lincoln also appears on ABNCo.-printed souvenir cards sold to the public. One has presidential engravings of Van Buren through Lincoln in ornate frames arranged on an elaborate background. Another depicts Lincoln, Washington and England's Prince Albert.

One of ABNCo.'s most famous reuses of its Girsch Lincoln vignette is its U.S. Centennial souvenir sheet printed on thick paper for Dwight Company. This very desirable item bears oval portraits of Washington through Grant within an elaborate border of state seals.

I was able to purchase the proof, signed off on by an ABNCo. official, indicating that 500 wide margin impressions were printed for Dwight Company. The notation indicates a like number were made for Meriot, Hooper & Co. I have never seen any, but would be interested to know if a *Coin World* reader has.

Additional reuses of



**FREDERICK GIRSCH'S** Lincoln engraving first appeared on \$10 demand notes.

the Girsch engraving include a State of Massachusetts Certificate of Honor for Civil War veterans, a state of Pennsylvania bond, and an 1892 Republican National Committee \$10 donation certificate. The latter presents the fullest printed version of the Girsch engraving of which I am aware besides the plate proofs mentioned earlier.

A famous late use of its Girsch engraving was ABNCo.'s World's Columbian Exposition tickets. Part of a series of decorative tickets recently reprinted by the firm, it offered admission to the Chicago World's Fair during May 1-Oct. 30, 1893. This is the easiest obtained example of the Girsch engraving.

In this century, ABNCo. issued a lithograph imprint of the Girsch engraving in 1936 on United Republican Finance Committee donation certificates. Other firms copied the Girsch impression for additional Republican campaign materials for that ill-fated election.

As the more publicly familiar of the two security engravings, the Girsch Treasury note image also spun off a plethora of lithographic copyists in Lincoln's time. In the words of Lincoln illustration expert Harold Holzer: "Ambitious lithographers

Please see **LINCOLN** Page 24



**LINCOLN GREENBACKS** attracted counterfeiters; portraiture was "wild-eyed and staring," according to counterfeit detectors.

and engravers ... intentionally modeled ... or shamelessly [stole] from existing paintings, photographs, or other prints."

As the most prevalent of those images, the Girsch Lincoln portrait was frequently the mark for these copyists and dozens of choice pieces in my collection patently derive from the currency model.

The currency image's impact on these other media, reinforced initially by the significant volume of government treasury note imprints, faded appreciably with the introduction of new notes in 1869.

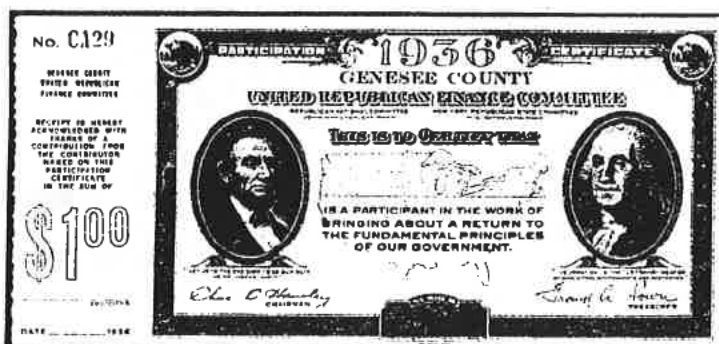
Half of the portraits in my collection deriving from the currency model appeared 1861-1869. In the decade of the 1870s, examples drop off more than 80 percent. By the turn of the century, its use becomes infrequent as a model.

Why this drop off is so dramatic is easily understood by numismatists. As noted at the beginning of this series: We hold the evidence in our own hands. Shortly after Lincoln's demise, the government commissioned differing Lincoln currency portraits and also introduced significantly different images on its revenue stamps and revenue stamped paper.

Fairly quickly these new "offi-

cial" images displaced both Gugler and Girsch portraits in the public mind. As these new likenesses became more prevalent, they also became the new models for the general media as well. The lesson is simple: The media of money is a strong aphrodisiac. The importance of its images and the impact they possess needs to be better understood.

It would be appropriate to thank many people. I would be remiss not to mention several, including LeRoy H. Fischer, Gene Hessler, Lloyd Ostendorf, Daniel Weinberg, Gordon Bleuler, Doc Carberry, Mark Neely, Eric Jackson and Bob Wallace. I welcome correspondence regarding Lincoln images at P.O. Box 118162, Carrollton, Texas 75011-8162.



**TIMES CHANGE.** In 1936 ABNCo. reproduced the Girsch engraving as a lithograph for the Republican campaign coffers.

# PAPER

## *The Magic of*

*The profile and watermark initials of Luigi Mecella leave no doubt: This sun-goldened sheet, molded in the renowned papermaking center of Fabriano, Italy, is his handiwork. Endlessly useful and often elegant, versatile paper can be a vehicle for a writer's expression, a surface for an artist's brush, and, sometimes, art itself.*

By JON R. LUOMA  
Photographs by SISSE BRIMBERG  
NATIONAL GEOGRAPHIC PHOTOGRAPHER



**S**OICHIRO SAKAMOTO'S MODEST HOUSE sits shadowed by lush green mountains in the tiny village of Futamata, not far from the Sea of Japan. In his workshop, a place suffused with soft light and the burbling of water in motion, Sakamoto glances over his shoulder and grins.

"A geisha once told me I was an excellent dancer," he says.

Sakamoto is gracefully swaying as water drains out the bottom of a large, shallow tray he holds by two handles. The tray is a *sugeta*, or paper mold, little more than a wooden frame around a removable screen of split bamboo stalks.

Yet the device might as well be a sorcerer's tool for the magic Sakamoto works with it. Into a vat of water he has mixed a few handfuls of damp fluff—fibers from a small tree called *kozo*. He scoops his mold into the vat, lifts it out brimming with liquid, and shakes it while the water drains through.

When the water vanishes, a rectangle the color of oatmeal materializes atop the screen. The rectangle will dry into a sheet of paper, a substance that has been a cornerstone of civilization for two millennia. On paper the lessons of history and the fire of human genius have blazed across space and time—the notes of Mozart, the words of Shakespeare, the sketches of Picasso, the wisdom of Gandhi.

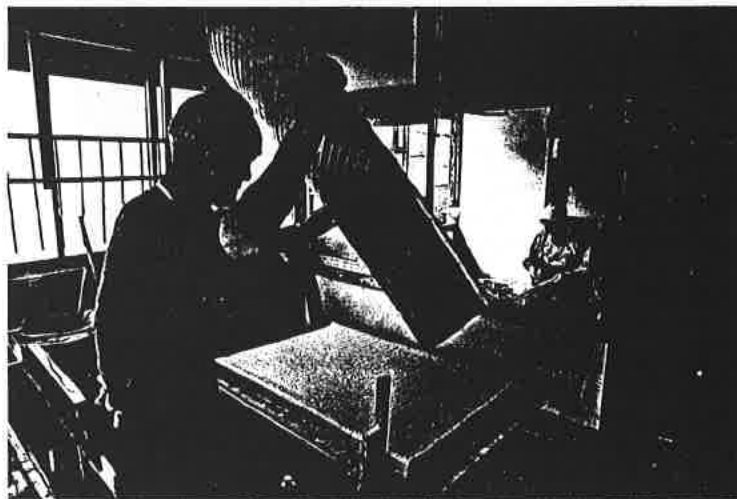
Words on paper changed the way people thought. Martin Luther went so far as to call printing "God's highest and extremest act of grace." If every man could own a Bible, Luther reasoned, he would no longer need a priest to interpret God's word. Paper and printing guided Europe out of the Dark Ages: Just 50 years after Johannes Gutenberg invented his printing press in the mid-15th century, more than six million books had been published on law and science, politics and religion, exploration and poetry.

From the remarkable to the ordinary, paper bespeaks the magic of innovation. It is as simple as a factory-made roll of kitchen towels, as extraordinary as the luxurious kimono sashes Sakamoto sells for \$5,000 and up. Paper is durable U.S. currency stock rolling off machines in a

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JON R. LUOMA is the author of several books, including *A Tree and Its Forest*, which will be published later this year by Henry Holt & Co.

**P**icked clean of impurities, silken fibers (below right) from the inner bark of the *kozo*, or paper mulberry tree, await the next stage in traditional Japanese papermaking. Keeping



the art alive in the village of Kurodani, Tokuichi Fukuda and his wife, Tsujiiko, bend to their craft. While she scrapes bark (top), he

stirs a mix of kozo fibers and neri—a mucilage derived from mallow root that prevents the fibers from clumping. After draining a film of interlocking fibers, he places the new sheet of

tightly guarded mill. It is a cardboard box filled with delicate computer parts in a warehouse, the same discarded box a homeless man fashions into temporary shelter.

As an industrial commodity paper ranks among giants such as petroleum and steel. Modern mills worldwide produce a third of a billion tons of paper every year—three times the total weight of the world's production of motor vehicles. In the U.S. alone a 170-billion-dollar industry makes enough paper each year for two billion books, 24 billion newspapers, and some 372 billion square feet of corrugated cardboard.

Today's business is a far cry from the ancient craft of papermaking as practiced down the centuries by highly skilled artisans like Sakamoto. Contemporary papermakers still use the essential recipe of their predecessors—

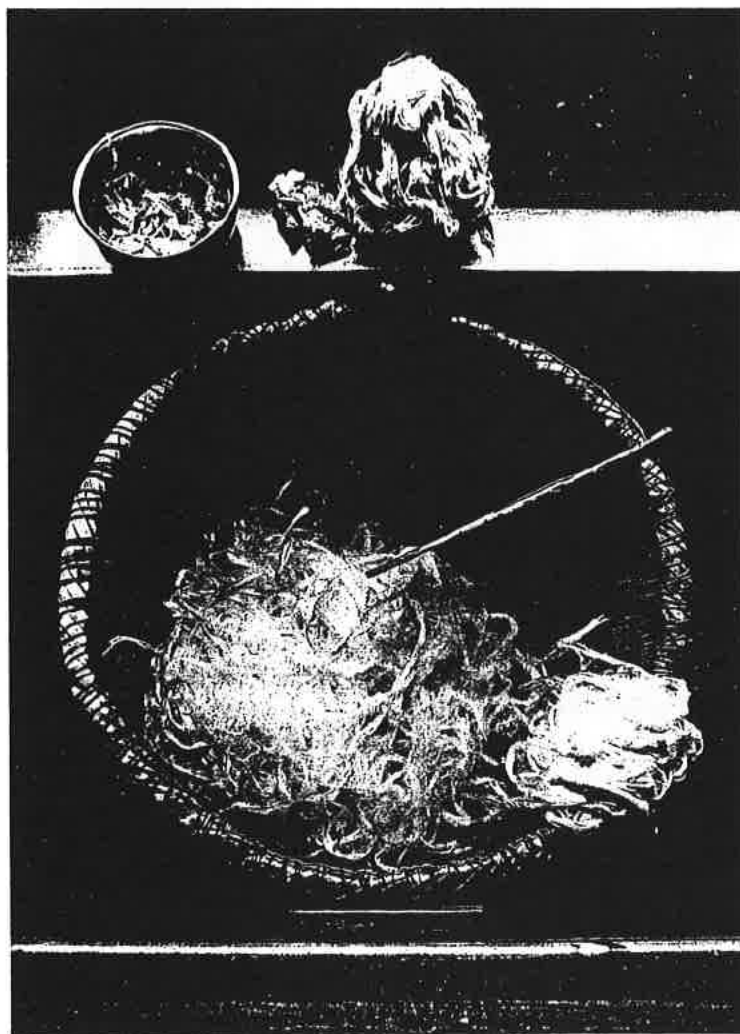
water and cellulose fibers. Paper forms when atoms in the fibers bond with those in the water molecules. As the water is drained through a screen, the water molecules tug at the fibers with a force that enmeshes them so tightly new bonds form between the fibers to create a solid surface.

Throughout the U.S. I saw modern paper machines the size of strip malls being run by men in booths that looked like the bridge of the starship *Enterprise*. Each machine thundered and steamed, a howling mass of rollers, ducts, and pipes. On one end water containing a small amount of wood pulp cascaded onto a conveyor belt that looked like an immense piece of window screen. A ribbon of paper as wide as a two-lane highway rolled out the other end.

Those highways often dead-end as waste in landfills, taking up more space than any other garbage. In addition, environmentalists charge, the paper business denudes forests and pollutes air, land, and water by spawning poisons like dioxins

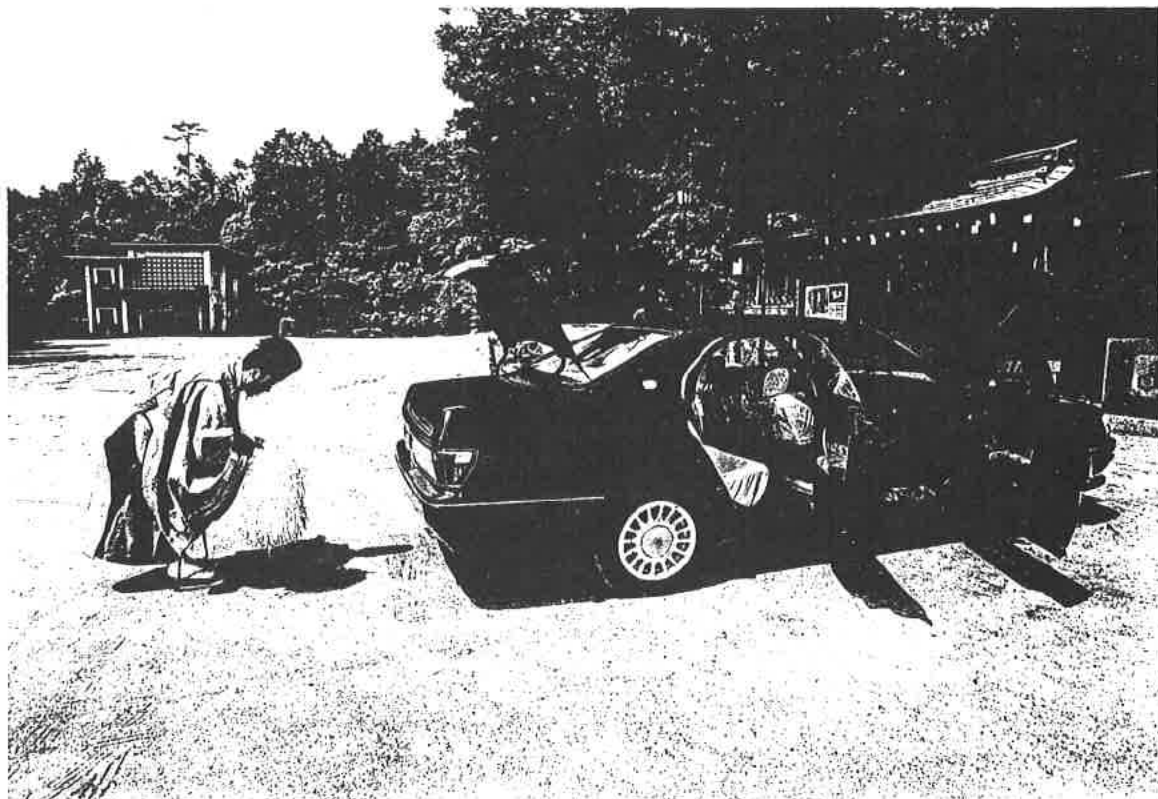
as an industrial by-product. "Right now, the industry is one of the world's worst polluters," says Joe Thornton of Columbia University's Center for Environmental Research and Conservation.

But some innovators are working to solve these problems. By recycling paper and its industrial wastes or even by creating new building materials from used paper, this essential commodity can be made more environmentally sound.



paper on a stack (bottom left). Families in this village are related through intermarriage, a custom that once guarded the secrets of washi.





Such issues are part of the practical story of paper, the one that I set out to tell: big fast machines, pollution control, recycling, forest management, the important matters of the industrial world. But along the way I discovered artists, papermakers, conservators, and scientists obsessed with the magic of this substance.

**E**VER SINCE THE CRO-MAGNONS began painting bison and mammoths on the walls of caves, humans have been searching for the ideal surface on which to record ideas. The ancient Chinese carved pictographs in bone. Greeks scribbled on parchment made from animal skin. The Maya painted hieroglyphs on beaten mulberry bark. The ancient Egyptians made papyrus, the writing material that one day would lend paper its name, by pressing together wet layers of that Nile sedge. But real paper proved cheaper than parchment to make and could be produced in great quantities. And paper was better than papyrus or tree bark for printing.

The first papermaker, according to legend, was Ts'ai Lun, who created paper from hemp, tree bark, rags, and fishnets in A.D. 105, perhaps to fulfill Chinese calligraphists' desire for a more practical writing material than silk or bamboo strips. The Chinese have loved paper ever since. Centuries before Gutenberg, they invented movable type. They were the first to make paper money, toilet paper, and paper books. It was forbidden even to step on a piece of paper with writing on it.

"Lovely and precious is this material," wrote Fu Hsien, a scholar in the third century. "Luxury but at a small price; / Matter immaculate and pure in its nature / Embodied in beauty with elegance incarnate, / Truly it pleases men of letters."

When papermaking reached Europe in the 12th century, it set the stage for the first information revolution, which began three centuries

*"D*emons don't like paper's hissing noise," says a Shinto priest in Hiroshima. With a whisk of a harai-gushi, a sheaf of cut and folded paper strips, he purifies a new car by driving spirits out. Priests equated white paper's beauty with godly perfection when the material arrived in Japan about A.D. 600. Since then, ritually folded paper has represented prayer and offering.

**B**idding farewell to her deceased father-in-law in the Chinese tradition, Ausanat Laoapasuwong of Bangkok, Thailand, sends him off to the afterlife with paper necessities—a Mercedes-Benz for the journey and a jet for trips home. In the 13th century Marco Polo witnessed Chinese funerals where paintings on paper of “male and female servants, horses, camels” were burned for use in the hereafter.

later with Gutenberg's printing press. “It was mass printing that was responsible for the big spreading of ideas,” says Peter Tschudin, president of the International Association of Paper Historians. “And there is no doubt at all that the arrival of paper was the real advent of the printed word.”

In the Gutenberg era, printers used paper made of hemp and linen rags. The purity and strength of these papers ensured the survival of great works for hundreds of years. Jesse Munn, a paper conservator at the Library of Congress in Washington, D.C., treated me to such a work, Saint Augustine's *City of God*, printed in 1473. It looked as handsome today as it did when new: The thick pages were the color of Devonshire cream, the lettering was ornate and filigreed, with each drop initial carefully hand-colored.

Jumping ahead a few hundred years, we then examined a cantata in the hand of Johann Sebastian Bach: “Feast of the Visitation: My Soul Doth Magnify the Lord.” Slashing, slanting sixteenth notes, and sometimes excess drips of ink, rushed across the page.

But while I marveled at Bach's energy, Munn only nodded distractedly at the cheap, dull paper Bach bought, apparently because he couldn't afford anything better. “He really used poor papers,” she said, shaking her head. At least one of his compositions appears to have been committed to a sheet he got from the fishmonger.

Yet even the maestro's paper was in better shape than the yellowing pages of books I bought only 20 years ago. Why are some of my books slowly turning to dust?

The problem stems from the increased demand for paper during the 19th century, when papermakers turned to fiber from trees for their raw material because it was cheaper and more abundant than rags. Unlike cotton, which is almost pure cellulose, tree fibers are cemented together with a natural substance called lignin, which eventually oxidizes and



turns the paper brown. An acid sizing added to the paper made the problem worse. Over time, the paper turned as brittle as a dead leaf.

In the U.S. today the majority of the books published are printed on nonacidic paper to better preserve them, but what about most of the books published since 1900? Conservators rescue some damaged pages by bathing them in solutions that neutralize the acids. But the Library of Congress, which houses some 20 million volumes, has only a handful of conservators to save its treasures. It is also scrambling to store its collection on microfilm or in computerized form, but with the books decaying at an alarming rate, it expects to record only a fraction.

Can nothing else be done? I asked Marvin Kranz, a history librarian, who waved his arm toward the towering stacks overhead. "You go to the house of worship of your choice, and you pray."

**W**HILE YOU'RE AT IT, you can pray for ways to save paper from the trash heap, especially in the U.S., where people use and discard more paper than in any other nation. In 1995 each American used an average of 731 pounds of paper, more than double the amount of a decade before. Contrary to predictions about the computer age displacing paper, consumption is soaring.

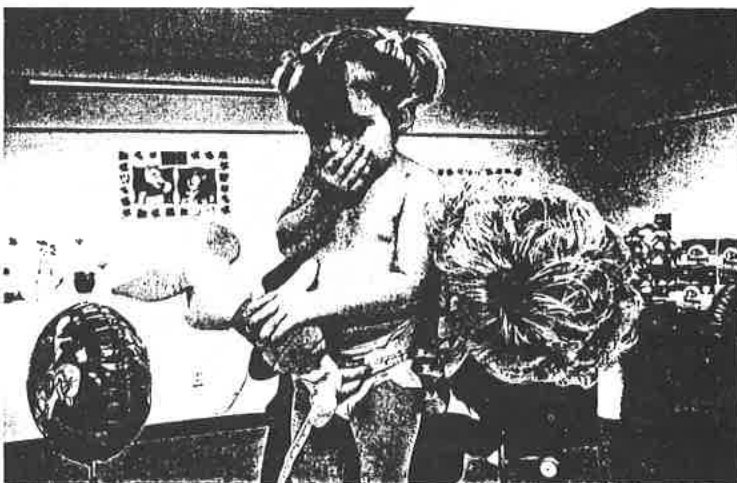
At the same time, people are recycling far more wastepaper than they were just five years ago. Then it seemed as if every U.S. city had set up a recycling program. But there wasn't enough demand for the old paper or enough recycling mills to take it in. The result was warehouses like the one I visited at the Waldorf Corporation, a mill in St. Paul, Minnesota, so stuffed with newsprint in 1989 that it was forced to turn recyclers away.

"There was a glut," Tom Troskey, who procures paper for Waldorf, told me recently. "Some cities were paying mills to take newsprint off their hands. Now demand is rising to where we're looking at 50 percent of paper being recycled by the year 2000."

That sounds like good news. But recycling has its limits: Every time paper fibers are repulped, they degrade, and the paper loses strength.

At the U.S. Forest Service's Forest Products Laboratory, in Madison, Wisconsin, researchers are finding new ways to use paper that is past its prime. From old newspaper combined with used plastic, then heated and compressed, the lab has made lawn chairs, seat-belt covers, and even dog dishes. It has licensed another technology to two companies for paneling made mostly from used paper, which has found its way into Hollywood stage sets and may someday provide temporary shelter for California's migrant workers.

Ted Laufenberg, a scientist at the Madison lab, handed me a cross section of the new paneling, which was as light as cardboard but as stiff as a steel I beam. Its outer layers were wood veneer; the inside was constructed from compressed newspapers, molded like an egg carton into a series



**A**ccidents can and do happen at Procter & Gamble's disposable diaper testing lab in Cincinnati, Ohio, where a toddler's diaper is checked for fit. Most discarded diapers end up in landfills.

This Russian woman will save her festival costume from a similar fate, though old newspapers are usually left to disintegrate in the nation's overburdened dumps.





of arches to provide support. Laufenberg believes it's strong enough to replace particleboard at half the weight.

But could something like these squares of paper trash catch on enough to make a difference? Will they ever be taken seriously as a construction material? Laufenberg thinks so—for interior use at least.

The new products may someday reduce the number of trees cut for timber, but they won't stop forests from being axed for pulp. Every year an estimated ten billion cubic feet of pulpwood is harvested worldwide for paper products. But contrary to a common misconception, that's less than 9 percent of the total timber harvest. And in the U.S. most pulp comes not from wild woods but from forests that are managed primarily for paper production.

One fine spring day I was driving through a forest of maple, beech, and cherry on the Tug Hill plateau east of Lake Ontario with Bruce Carpenter, who heads an environmental group called New York Rivers United. Green buds were just breaking open in woods that looked so wild they might have been protected parkland. But this was 50,000 acres of commercial forest, owned by the Lyons Falls Pulp and Paper Company. Like much paper-company land in northern New York, it had been selectively logged.

Carpenter was worried that this virtually unbroken expanse of forest wouldn't remain that way much longer. Lyons Falls was faced with declining profits and rising property taxes and was tempted to sell off its forest. To keep that from happening, Carpenter and other environmentalists—along with several industry representatives—had been lobbying state politicians to purchase conservation easements that would protect the land and help the company stay in business.

"Here we have a chance to sustain an industry and the forest at the same time, and we're blowing it," Dan McGough, former vice president

*H*anging on every word, would-be buyers preview part of an Abraham Lincoln speech before the document is auctioned at Christie's in New York City. Delivered during his campaign against Senator Stephen A. Douglas, the speech was penned by the future President, transforming otherwise ordinary sheets of rag paper. The coveted pages sold for \$497,500.

of Lyons Falls, told me after the New York Legislature failed to pass the conservation easement bill in 1994.

Early in 1996 the company announced that it had sold its land to the Hancock Timber Resource Group. Although Hancock has a solid reputation for good long-term management of woodlands it owns elsewhere in the U.S., Carpenter worries that without formal conservation easements in place the demand for vacation property in the region will continue to put pressure on landowners to fragment their holdings.

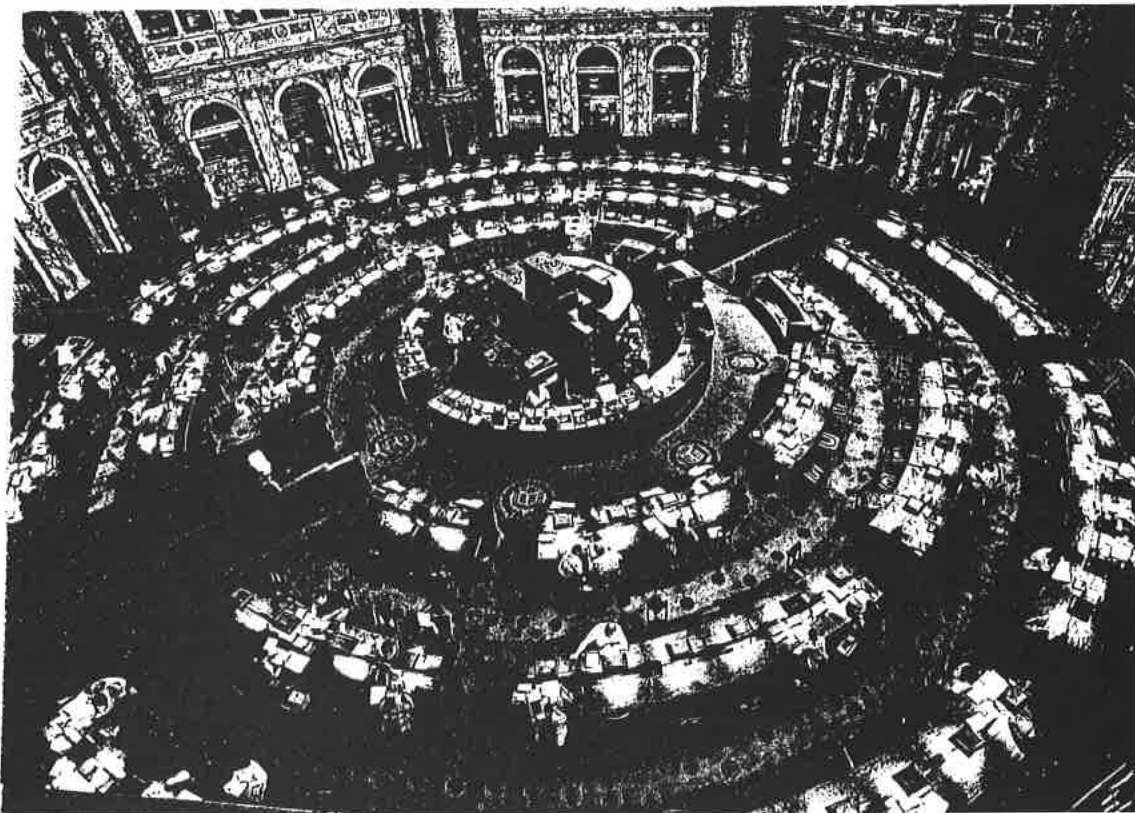
"Hancock could end up selling off places like this in 20-acre parcels for homes and condominiums," he said, his arm sweeping the surrounding woods. "We'll end up with more roads, more sediment in wild rivers, and clearings around every building. We feel that this is the place to prove that the paper and lumber industries could be one of the environment's best friends."

**T**HAT'S NOT LIKELY TO HAPPEN SOON. For decades environmentalists have accused the paper business of gulping water, logging vast expanses of forest, producing waste, and spewing pollution. Meanwhile, the industry counters that it has increased its use of recycled papers (less than half of discarded paper ends up in landfills today), reduced energy consumption and pollution, and replanted forests.

"The paper industry has been a good corporate citizen," says Tom Schmidt, president of the Wisconsin Paper Council. "The industry recycled 43.3 million tons of paper in 1995, versus about 22.5 million in 1986. And for years it has operated beyond compliance with air and water pollution regulations."

Schmidt has reason to get defensive. Since 1985, when highly toxic dioxin was first discovered in the effluent of paper mills, the industry has spent more than a billion dollars to clean it up, claiming that by the end of 1994 it had cut dioxin discharges to under three ounces a

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year—less than one percent of the amount released by all sources in the U.S. annually. But even tiny amounts may be harmful, hence the Environmental Protection Agency (EPA) recommendation of a water-contamination limit of .013 parts per quadrillion.

This is why environmentalists continue to pressure the industry, which releases dioxin and related organochlorine compounds in mill discharges as by-products of bleaching processes. To remove residual wood impurities and to improve paper's printing quality, mills have traditionally bleached their pulp with chlorine, which reacts with pulp to form organochlorines. Many of these chemicals, including dioxin, later work their way into the food chain by accumulating in the fatty tissues of fish, birds, and other creatures.

Although the health effects on humans from these chemicals remain controversial, in 1994 the EPA released the draft of a long-awaited study suggesting that further exposure to even small amounts of certain organochlorines could lead to increased risk of cancer, immune-system suppression, and birth defects.

**P**ERHAPS NO PLACE DEMONSTRATES the persistence of the environmental problems better than the Fox River Valley in northern Wisconsin, where there are more paper mills than anywhere else in the nation. In the city of Green Bay, I dropped in on Mike Zettel, proprietor of Ole' Deviley's Bait Shop, a ramshackle gray building filled with fishing lures, night crawlers, and leeches. A burly fellow dressed in wing tips and dress pants, Zettel looked a bit out of place. He had just come from his job as a city police detective.

Zettel recalls the odor of the paper mills and the river in the early 1970s, when he walked the beat as a uniformed cop.

"It was so bad there were nights you couldn't stand it. There wasn't any oxygen in the river, and there weren't any fish except carp. It's gradually come back to the point that you've got a good fishery out there."

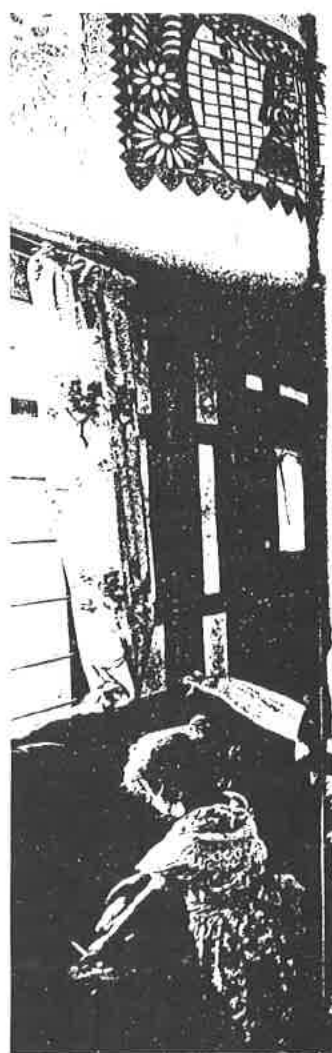
But you shouldn't eat the walleye and catfish from this river. Zettel tells me the fish still contain traces of harmful chemicals, the industrial residue dumped by paper mills long ago.

At least one local mill, owned by Green Bay Packaging, Inc., has figured out how to manufacture paper safely. No one complains about how many trees the Green Bay mill logs. Nor is anyone inclined to gripe about the pollutants it discharges. The reason is simple: It doesn't.

Inside the mill Jeff Walch, the general manager, took me to a loading area where forklifts were pushing bales of old corrugated boxes, what he called their "urban forest," onto conveyors that ramped up to a huge pulp vat. Then we slipped out back to look at where the mill used to discharge its wastewater into the Fox. Instead, I found a series of tanks filled with water to be recycled back to the mill.

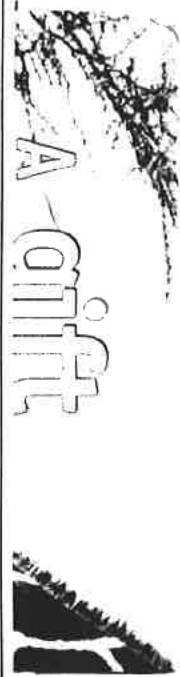
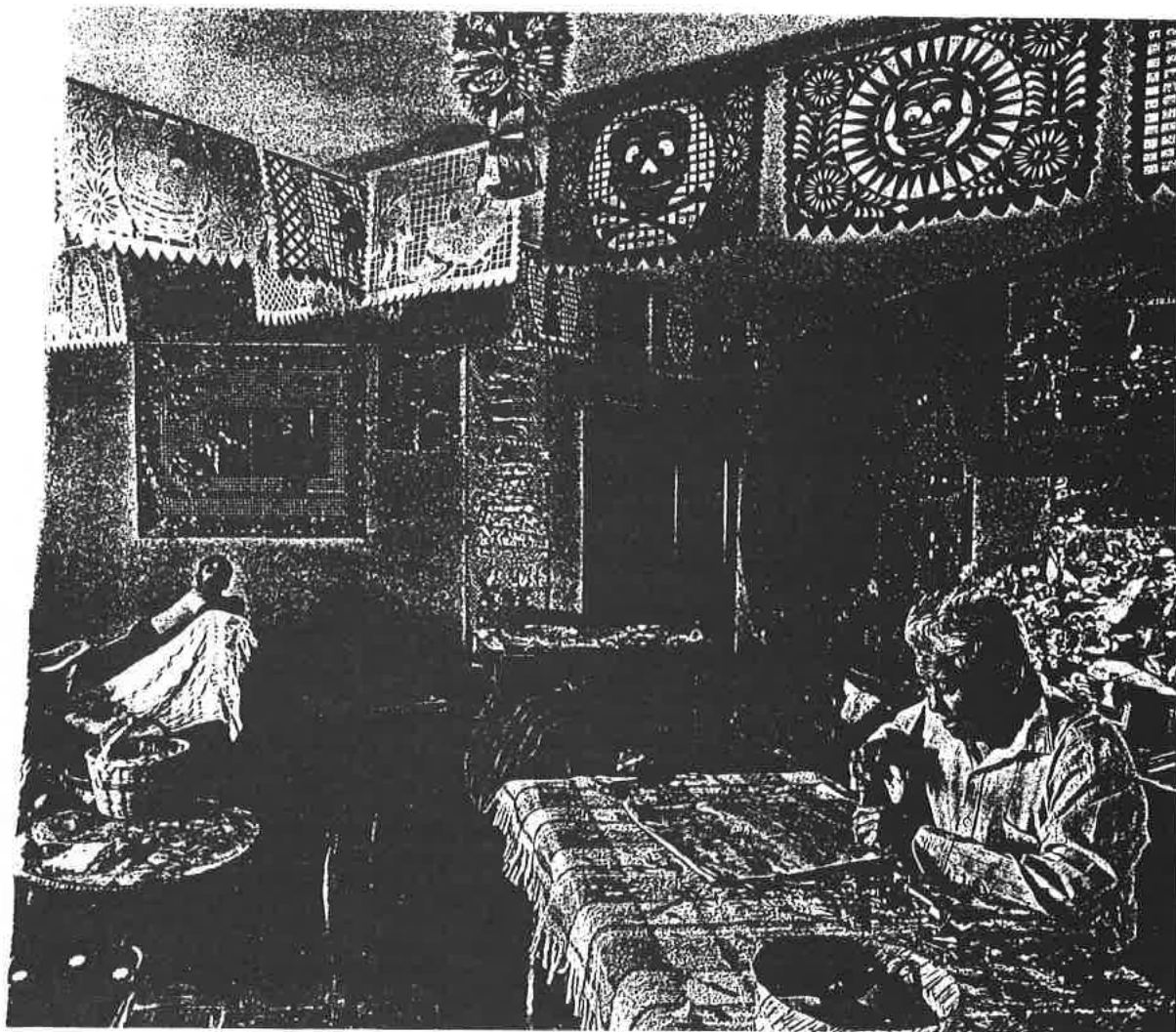
"This valley is lined with paper mills because this is where the raw material was," Walch said. "And we needed to be on the river because this industry uses horrendous quantities of water. But in 1988 we made a commitment to rebuild this mill to make 100 percent recycled cardboard products and to completely close up our water loop." The system here recycles water that would otherwise be discharged. It is the sort of move that environmentalists like to see, where wastes become resources.

But this particular mill doesn't have to worry about bleaching its paper, because customers don't expect the cardboard it makes to be white. What about businesses like publishing that need white paper for high-quality printing? If you print a full-color magazine on paper that is

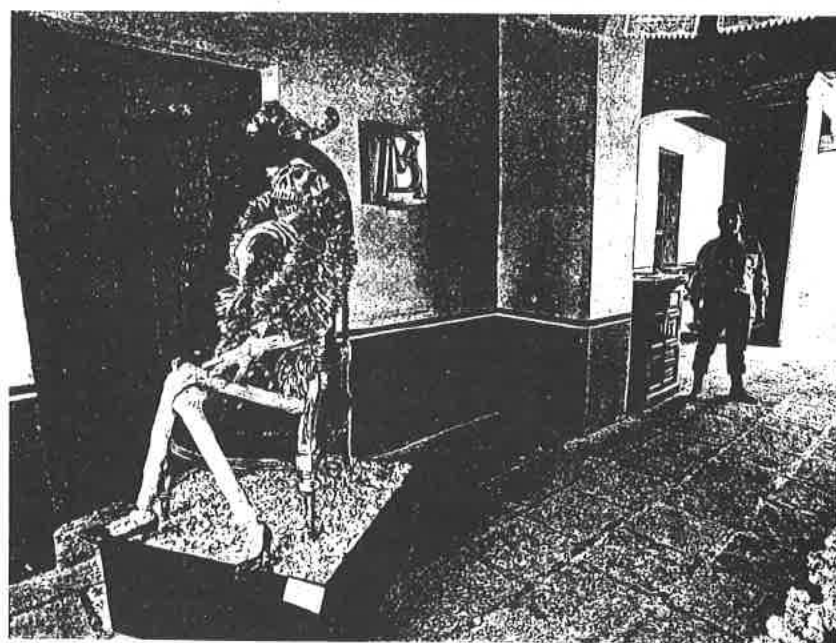


**A** cut above the rest, Mexican craftsman Luis Vivanco Macías brings perfection to the art of papel picado, or punched paper. For over a century his village of San Salvador Huixcolotla in the state of Puebla has turned out banners celebrating whimsical—and macabre—characters. Bought by the armload at the local market, the





A gift



cutouts decorate homes and altars across the country on such holidays as El Día de los Muertos, the Day of the Dead.

Ghoulishly gorgeous, "La Catrina" makes no bones about laughing at life. Vamping in Mexico City's posh district of San Angel, she is a fine example of cartonería, the art of sculpting with cardboard tubing, wire, and papier-mâché.

not bright white, it distorts and muddies the color photographs. Are there no alternatives to chlorine bleaching? The industry is exploring several other bleaching methods. One of the mills that supplies paper to NATIONAL GEOGRAPHIC, for example, has switched from elemental chlorine to chlorine dioxide, which reduces organochlorines dramatically. Other mills are spending millions of dollars each to follow suit. They soon may not have a choice, because the EPA is considering regulations that would prohibit the use of elemental chlorine in any mill.

TALK to an average Japanese citizen about paper and such issues are not likely to be part of the conversation. Few nations revere paper as much as Japan, where the ancient art of *washi*, or handmade paper, endures: Calligraphers still bend over ivory sheets of washi. Geishas protect their skin from the sun with washi umbrellas. Children fly colorful washi kites and fold washi into intricate origami.

"We were born in a house of paper," said Kyoko Ibe, an artist I met in Kyoto, referring to *shoji*, the translucent paper windows of the traditional Japanese home. "And we retain the good feeling. Behind the *shoji* screen we cannot really see you, but we can know your actions, whether or not you are lively."

She pointed to a long piece of white washi hanging in her studio window. The sunlight warmed and softened as it passed into the room. "The best condition for paper is between the eye and light," Ibe said. "I can feel the life of the fiber. I can hear it. Perhaps we respond because of our own veins and arteries. We are knitted and connected, like the fiber."

A wistful note crept into Ibe's voice. "So often today people don't even think about paper," she said. "They just throw it away."

Not far from Kyoto, the mountain village of Kurodani, known for its papermakers, seemed locked in a changeless setting: Steep slopes, green with apricot trees, bamboo, and persimmon, rose above the village, shadowing its low wooden houses.

Kiyoshi Fukuda, chief of the local papermakers' cooperative, showed me small shops where papermakers were stirring pulp, forming sheets of paper, and plastering them onto boards of ginkgo wood to dry.

All this activity was deceptive. "I come from a family of papermakers. I learned by watching my father," Fukuda said. "But young people today see papermaking as a low-status job. They all want jobs in the city," he added, casting a sorrowful eye over the little workshops where a few hands kept the old tradition alive.

As recently as 20 years ago, there were nearly 900 households making washi in Japan. Today there are 360. "At one time a hundred households made paper in this village," Fukuda said. "We have 20 households making paper today. I tell young people this is a wonderful old craft, and we need to preserve it."

No longer am I surprised by the passion people like Fukuda have for this simple medium. Sometimes I find myself holding sheets of paper to the light to look at its specks and mottles; paper made of tree fiber, cotton, linen, or the bark of shrubs.

I asked Mr. Fukuda to teach me his wonderful craft. He stood at my side in a workshop in Kurodani, helping me dance with the paper mold.

My first sheet was not so bad. Fukuda-san smiled.

"One more," I said. With confidence this time, I danced the fibers into line without help. Another sheet formed, a butterfly of a thing.

"Just one more," I said again.

Fukuda gave me a knowing nod.



Strings of folded paper cranes—the bird is Japan's symbol of peace and hope—screen the devastation depicted on a monument in Hiroshima, site of the first atomic bombing in 1945. Since then, children have draped winged offerings to honor a young girl who, dying from radiation poisoning, set out to fold a thousand paper cranes in the belief